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10/549,329	07/24/2006	Henning Sirringhaus	Q90316	6691

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EXAMINER	
OLSEN, KAJ K	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
04/13/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/549,329	SIRRINGHAUS, HENNING	
	Examiner	Art Unit	
	KAJ K. OLSEN	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-47 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-47 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/16/2005.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: There should be an opening paragraph stating that this application is a 371 National Stage Entry of PCT/GB2004/001135 filed on March 17, 2004.

2. For the brief description of drawings, "figure 2" should be replaced with --figure 2(A) and 2(B)-- such that every figure and subfigure is described. Similar amendments would also be necessary for fig. 3-8 as well.

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 27 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 27 contains the abbreviation "PEDOT/PSS" that needs to be explicitly written out.

7. Claim 35 is dependent on claim 34, but defines a different type of environmental condition to be measured. It would appear that claim 35 should depend from claim 33 and not claim 34 (analogous to how claim 9 depends from 7 and not 8). For the purpose of examination, the examiner will presume claim 35 should depend from claim 33, but clarification is requested.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-7, 9-16, 30, 31, 33, 35, 36, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 02/086162 A1 (hereafter "WO '162").

10. With respect to claim 1, WO '162 discloses a sensor comprising a microfluidic channel 105 and an electrode sensing device 150 on a first substrate 102, and a second substrate bonded to the first substrate so as to close the microchannel wherein a functional part of the electronic sensing device (i.e. the gate or the molecules bound to the gate) is exposed at the surface of the microfluidic channel. See fig. 9, 13, and 14; p. 16, ll. 7-23; and p. 23, ll. 2-4.

11. With respect to claims 2 and 3, see p. 19, l. 26 – p. 20, l. 1. Proteins, enzymes, and DNA are all organic polymers.

12. With respect to claim 4, how the channel is formed does not further define the actual structure of the sensor. The determination of patentability for the claim is based on the product itself. Because the product of the claim is identical to the invention of WO '162 the process from which it was made is the same as or obvious over the process utilized by WO '162 (see *In re Thorpe*, 777 F.2d 695, 698).

13. With respect to claim 5, the exposed gate electrode (Au) would be insoluble in water.

14. With respect to claims 6, 7, and 9, the immobilized biomolecules will clearly affect the electrical characteristics and would be sensitive to the environmental conditions of the channel (i.e. they would be sensitive to the biomolecules being sensed).

15. With respect to claim 10, see the abstract.

16. With respect to claims 11 and 12, gate insulating layer 132 is also an exposed functional part of the electronic sensing device.

17. With respect to claim 13, the gate electrode of WO '162 is a conducting layer of gold (p. 16, ll. 17-20).

18. With respect to claim 14, see the abstract and p. 16, ll. 17-20.

19. With respect to claims 15 and 16, active layer 120S and 120D are semiconducting materials.

20. With respect to claim 30, WO '162 discloses a microchannel 105 and a pair of electrodes of an electronic sensing device (any of 105d, 105g, or 105s). See the discussion above. With respect to the electrodes and microchannel being defined in a single operation, the determination of patentability for the claim is based on the product itself. Because the product of the claim is identical to the invention of WO '162 the process from which it was made is the same as or obvious over the process utilized by WO '162 (see *In re Thorpe*, 777 F.2d 695, 698).

21. With respect to claims 31, 33, and 35, see the discussion of claims 4, 7, and 9 above.

22. With respect to claim 36, see p. 16, ll. 7-23.

23. With respect to claim 47 (those limitations not discussed above), gate insulator 132 is exposed to the surface of the microchannel (fig. 9 and 10).

24. Claims 1-7, 9, 11, 13, 15, 17, 19, 20, 30, 31, 33, 35, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Clark et al (USP 5,194,133).

25. With respect to claim 1, Clark discloses a sensor comprising grooves 3 and an electronic sensing device 4 on a first substrate 2 (fig. 2 and col. 2, ll. 25-47). With respect to the grooves being a microchannel, the grooves of Clark are of a micron dimension (col. 2, ll. 32-35) so they would clearly constitute microchannels. Clark further discloses the use of a second substrate (i.e.

cover) to close the microchannels (col. 1, ll. 54 and 55; col. 7, ll. 59-64). The functional part of the sensing device (i.e. the electrodes themselves or the enzyme utilized make the electrode selective (col. 3, ll. 48-50) is exposed at the surface of the microfluidic channel (fig. 2). Although Clark does not explicitly disclose that the second substrate is bonded to the first substrate, it clearly would have been obvious to bond these two substrates together such that fluid pressure does not separate them and cause leaking.

26. With respect to claims 2 and 3, enzymes are organic polymers. Moreover, Clark teaches the use of polypyrrole as well (col. 4, ll. 24-28).

27. With respect to claim 4, how the channel is formed does not further define the actual structure of the sensor. The determination of patentability for the claim is based on the product itself. Because the product of the claim is identical to the invention of Clark the process from which it was made is the same as or obvious over the process utilized by Clark (see *In re Thorpe*, 777 F.2d 695, 698).

28. With respect to claim 5, the electrodes are presumably not soluble in water.

29. With respect to claims 6 and 7, the functional part is inherently the part that will control the electrical characteristics of the sensor and is going to be a function of the environmental conditions of the sensor.

30. With respect to claim 9, the electrodes are presumably for monitoring the effect an analyte has on the sensing electrodes (e.g. conductance changes induced by urea (col. 5, ll. 28-34).

31. With respect to claim 11, the various electrodes of Clark are separated by an insulating portion of the substrate. Because this insulation is neccessary to keep the electrodes from

conducting current in the absence of sample, this insulating portion constitutes a functional part of the sensor and is exposed in the microchannel.

32. With respect to claim 13, both the metal electrodes and the conducting polymer (see the discussion above) are conducting layers.

33. With respect to claim 15, polypyrrole is a semiconductor.

34. With respect to claims 17, 19, and 20, see col. 2, ll. 32-35.

35. With respect to claim 30, Clark discloses a microchannel 3 and a pair of electrodes 4 of an electronic sensing device. See the discussion above. With respect to the electrodes and microchannel being defined in a single operation, the determination of patentability for the claim is based on the product itself. Because the product of the claim is identical to the invention of Clark the process from which it was made is the same as or obvious over the process utilized by Clark (see *In re Thorpe*, 777 F.2d 695, 698).

36. With respect to claims 31, 33, and 35, see the discussion of claims 4, 7, and 9 above.

37. With respect to claim 47, see the discussion of claims 1 and 11 above.

38. Claims 1-7, 9-12, 17-20, 30, 31, 33, 35, 36, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 0 633 468 (hereafter "EP '468").

39. With respect to claim 1, EP '468 discloses a sensor comprising a microfluidic channel 1 (termed "micro-capillary") and an electronic sensing device (6, 7) having a function membrane 3 on a first substrate 12 and a second substrate 5 bonded to the first substrate. See fig. 1 and 2 and the specification.

40. With respect to claims 2 and 3, EP '468 uses a bioactive membrane 8. Although this membrane is not explicitly disclosed as containing any bioactive material in particular, the use of bioactive agents such as enzymes (an organic polymer) would have been obvious.

41. With respect to claim 4, how the channel is formed does not further define the actual structure of the sensor. The determination of patentability for the claim is based on the product itself. Because the product of the claim is identical to the invention of EP '468 the process from which it was made is the same as or obvious over the process utilized by EP '468 (see *In re Thorpe*, 777 F.2d 695, 698).

42. With respect to claim 5, utilizing a sensor with an insoluble ISFET membrane would have been obvious so the membrane would not dissolve in the fluid being measured.

43. With respect to claims 6 and 7, the functional part is inherently the part that will control the electrical characteristics of the sensor and is going to be a function of the environmental conditions of the sensor.

44. With respect to claim 9, an ISFET membrane would be sensitive to a particular ion species to be sensed.

45. With respect to claims 10-12, an ISFET is a transistor and would inherently comprise an insulating functional part exposed to the sample such that the sample would keep the FET source and drain electrically isolated.

46. With respect to claims 17-20, EP '468 does not disclose particular heights or widths of channels to be utilized. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to channel heights or widths of less than 1 mm or 20 microns, since it has been held that where the general conditions of a claim are disclosed in the

prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Moreover, once possessing ordinary skill in the art would recognize that smaller volumes of microchannel would require smaller volumes of sample, and it would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the claimed channel heights and widths in order to keep the overall sample volume requirements down as well.

47. With respect to claims 30, 31, 33, 35, and 36 (those limitations not covered above), an ISFET inherently has to contain at least one source electrode and at least one drain electrode. Hence, EP '468 would inherently comprise at least two electrodes (see also Knoll utilized below). With respect to the electrodes and microchannel being defined in a single operation, the determination of patentability for the claim is based on the product itself. Because the product of the claim is identical to the invention of EP '468 the process from which it was made is the same as or obvious over the process utilized by EP '468 (see *In re Thorpe*, 777 F.2d 695, 698).

48. With respect to claim 47, see the discussion of claim 11 above.

49. Claims 42-46 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 02/29912 (hereafter "WO '912").

50. With respect to claim 42, WO '912 discloses a method of producing a device comprising the formation of a body PVP having an electrically conductive layer (PEDOT), embossing the body to form a microgroove and a pair of electrodes where the electrodes are exposed at the surface of the groove. See fig. 4 and 5 and p. 7, l. 9 – p. 8, l. 14. With respect to the process being for the production of a sensor, the body of the claim has no step or steps drawn to actually constructing an actual sensor and the mere recitation of a sensor in the preamble is not deemed to

further define the actual process. The examiner notes that the embossing steps utilized by the present invention are substantially identical to the embossing steps of WO '912 and the principle distinction between WO '912 and the present invention is what is done *after* the initial embossing step. Absent the claiming of these additional steps, WO '912 anticipates the claimed method. As to the microgroove of WO '912 being a "microchannel", because this groove has micron dimensions (see sentence bridging pp. 6 and 7), this groove would constitute a microchannel giving the claim language its broadest reasonable interpretation.

51. With respect to claim 43, WO '912 refers to its embossing as being a microcutting process (p. 4).

52. With respect to claims 44-46, see fig. 4 and paragraph bridging pp. 8 and 9.

Claim Rejections - 35 USC § 103

53. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

54. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

55. Claims 8, 17-20, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO '162.

56. With respect to claims 8 and 34, WO '162 set forth all the limitations of the sensor and further disclosed the presence of a temperature sensor 500' (p. 21, l. 30 - p. 22, l. 3), which would inherently be sensitive to temperature. However, WO '162 did not explicitly disclose placing this electronic sensing device on the first substrate as WO '162 places this on the second substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to place this thermal sensor on any of the substrate surfaces defining the microchannel, including the first substrate, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

57. With respect to claims 17-20, WO '162 set forth all the limitations of the claim and disclosed a microchannel, but did not explicitly disclose how height and width of the microchannel. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to channel heights or widths of less than 1 mm or 20 microns, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Moreover, once possessing ordinary skill in the art would recognize that smaller volumes of microchannel would require smaller volumes of sample, and it would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the

claimed channel heights and widths in order to keep the overall sample volume requirements down as well.

58. Claims 18, 22-26, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark in view of Chow (USP 6,321,791).

59. With respect to claim 18, Clark set forth all the limitations of the claim, but did not explicitly recite the use of a height of 20 micron or less. However, Chow teaches that microchannels for chemical sensing and electrophoresis can have cross-sectional dimensions down to less than 20 microns (col. 3, ll. 46-63). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Chow for the height dimension of Clark in order to further shrink the amount of volume of sample necessary for successful analyte sensing.

60. With respect to claim 22, Clark set forth all the limitations of the claim (see discussion of claim 1 above), but did not explicitly the use of an organic substrate. Chow also teaches that organic substrates can be utilized for constructing microfluidic devices. See col. 4, ll. 46-50. The use of organic polymeric material has a number of advantages including that it would allow processes other than etching to be utilized for forming the microchannels (see col. 4, ll. 51-59). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Chow for the sensor of Clark because the substitution of one known material for another known material would have required only routine skill in the art.

61. With respect to claim 23, any number of the polymers of Chow in col. 4, ll. 46-60 would constitute elastomers giving the claim language their broadest reasonable interpretation.

62. With respect to claim 24, Chow discloses the use of a number of different substrate levels each having microchannels as well to increase the utility of the device. See fig. 1A and col. 2, ll. 14-24.

63. With respect to claim 25, see the discussion of claim 1 above.

64. With respect to claim 26, Clark teaches that the electrodes can be coated with enzyme entrapped polypyrrole (col. 5, ll. 24-28), which is a conductive organic polymer.

65. With respect to claim 32, see the discussion of Clark for claim 30 and the discussion of Chow for claim 22.

66. Claims 21 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP '468 in view of Knoll (USP 5,393,401).

67. With respect to the claims, EP '468 set forth all the limitations and disclosed the use the field-effect transistor (i.e. ISFET), but did not explicitly disclose the use of a vertical-channel FET. Knoll discloses the construction of a vertical FET where the channel 21 is vertically between the source 22 and the drain 23. See fig. 5, 6, and 9 and col. 7, ll. 36-45. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Knoll for the ISFET of EP '468 because the substitution of one known ISFET configuration for another requires only routine skill in the art.

68. Claims 22-25, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP '468 in view of Chow.

69. With respect to claim 22, EP '468 set forth all the limitations of the claim (see discussion of claim 1 above), but did not explicitly the use of an organic substrate. Chow also teaches that organic substrates can be utilized for constructing microfluidic devices. See col. 4, ll. 46-50.

The use of organic polymeric material has a number of advantages including that it would allow processes other than etching to be utilized for forming the microchannels (see col. 4, ll. 51-59). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Chow for the sensor of EP '468 because the substitution of one known material for another known material would have required only routine skill in the art.

70. With respect to claim 23, any number of the polymers of Chow in col. 4, ll. 46-60 would constitute elastomers giving the claim language their broadest reasonable interpretation.

71. With respect to claim 24, Chow discloses the use of a number of different substrate levels each having microchannels as well to increase the utility of the device. See fig. 1A and col. 2, ll. 14-24.

72. With respect to claim 25, see the discussion of claim 1 above.

73. With respect to claim 32, see the discussion of EP '468 for claim 30 and the discussion of Chow for claim 22.

74. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP '468 in view of Chow as applied to claim 22 above, and further in view of Knoll.

75. EP '468 and Chow set forth all the limitations of the claim, but EP '468 did not specify that one of its ISFETs was a pH sensitive ISFET. The previously relied on Knoll taught that one of the typical applications of an ISFET is as a pH sensor (col. 2, ll. 3-8). Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize one of the unspecified ISFETs of EP '468 as a pH measuring ISFET such that the pH of the analyzed sample can be monitored.

76. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of WO '162, Clark, or EP '468 in view of Tsukada et al (USP 5,250,168).

77. With respect to the claims, the references set forth all the limitation and all the references suggested the inclusion of other electronic devices (i.e. multiple sensors on the same substrate), but none of these references explicitly disclose that these other electronic devices are electrically connected to the electronic sensing device. Tsukada teaches an alternate electrochemical sensor where additional electronic devices (e.g. amplifiers) are integrated to the sensing electronic device so to further process the signal before delivery to the measurement unit. See fig. 3 and col. 5, l. 65 - col. 6, l. 6. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to include signal processing electronics integrated with the sensor electronics so as to amplify the signal at the source of the sensors.

78. Claims 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of WO '162, Clark, or EP '468 in view of Tsukada at applied to claim 38 above, in further view of Ito (USP 5,384,028).

79. The references set forth all the limitations of the claims, but did not explicitly recite the inclusion of memory or calibration function. Ito teaches that it is also desirable to include a memory integrated with a sensor device to store information about the sensor, including calibration information. See col. 2, l. 62 - col. 3, l. 3 and col. 3, l. 61 - col. 4, l. 4. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to also include memory for holding calibration information as suggested by Ito for the sensor of any of WO '162, Clark, or EP '468 so that the sensor's calibration information can be suitably stored with the actual sensor.

Allowable Subject Matter

80. Claims 27 and 28 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

81. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose nor render obvious all the cumulative limitations of claims 22, 25, 26, and 27 with particular attention to the use of a conducting layer of PEDOT/PSS. The teachings of Lewis et al (USP 6,890,715) and Yamagishi et al (USP 6,730,212) both teach the use of PEDOT/PSS as part of a chemical sensor. However, Lewis utilizes the polymer as part of a multivariate vapor sensor and Yamagishi essentially teaches that this polymer was not suitable for its sensing application (col. 11, ll. 8-28 and table 2). Hence, there is no motivation for utilizing either of these teaching in combination with the teachings of either Clark or EP '468. The examiner notes that in the international examination of PCT/GB2004/001135, the examiners appear to rely on the teaching of WO '912 in combination with other sensing art (including WO '162 and EP '468). However, WO '912 is drawn to a choice of polymer suitable for a thin film transistor switch (i.e. not a chemical sensor) and this examiner does not see the obviousness of relying on a polymer from the switching transistor art for a chemical sensor.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAJ K. OLSEN whose telephone number is (571)272-1344. The examiner can normally be reached on M-F 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kaj K Olsen/
Primary Examiner, Art Unit 1795

April 7, 2010